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Voluntary Adoption of Internal Audit by NASDAQ Firms and its Impact on Financial Reporting

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Abstract

While regulators recognize internal audit as an important governance function, the recent rejection by managers of NASDAQ firms of a proposal that would require NASDAQ listed firms to have an internal audit function indicates that management may not have the same regard for internal audit and may be unclear regarding internal audit's value. Using hand-collected data for a sample of firms that have and have not voluntarily adopted an internal audit function, I run regressions to identify the impact of internal audit adoption on financial reporting and audit fees. I also identify the factors that drive the adoption decision. I find that internal audit satisfies demand for an objective monitoring function by reducing management opportunism and highlighting issues that may have otherwise gone unreported. Firms with internal audit have lower discretionary accruals and are more likely to report a material weakness. Firms also implement an internal audit function over time and as they become financially healthier and feel more external monitoring pressure (e.g., from debtholders). The findings suggests that notwithstanding the lack of a regulatory internal audit mandate, internal audit currently fulfills a natural demand for monitoring within NASDAQ firms and that a systematic internal audit adoption decision making process may already exist.

Voluntary Adoption of Internal Audit by NASDAQ Firms and its Impact on Financial Reporting

by

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INTRODUCTION

This study examines the impact of internal audit on the financial reporting outcomes of NASDAQ firms as well as the factors that influence firms to voluntarily implement an internal audit function. Unlike the New York Stock Exchange (NYSE), the NASDAQ does not require firms to have an internal audit function. Based on the NYSE listing requirements, one of the primary expectations of the internal audit function is to provide management with ongoing assessments of the company's risk management processes and system of internal controls. The requirement further states that the company's audit committee must assist the board in its oversight of the performance of the internal audit function (NYSE Listed Company Manual 303A.07).

There is general agreement from stakeholders that governance is critical to the success of any organization. However, given that we cannot observe governance functions in operation nor can we easily isolate their direct impact on firm outcomes, the discussion/debate about what constitutes effective governance has been an ongoing one for many years. Across the landscape of business, internal audit has arguably been seen as a key internal governance function for many years. According to The Institute of Internal Auditors ("IIA"), the four cornerstones of corporate governance are the audit committee, executive management, internal audit, and the external auditor (Gramling, Maletta, Schneider and Church 2004). That notwithstanding, as a governance function and a profession, internal audit in many ways has not risen to the same level of prominence as external audit.

The IIA is the global voice of the internal audit profession. IIA (2007) defines internal auditing as:

An independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.

Taking the above definition by itself, it would appear that internal audit is a function that would benefit most organizations.

Research by Navigant in 2013 estimated that 40 percent of firms listed on the NASDAQ with market capitalizations between $75 million and $250 million did not have an internal audit function (Chambers 2015). The withdrawal in May 2013 by the NASDAQ of a proposed rule that would require all listed companies to have a formal internal audit function (Securities and Exchange Commission [SEC] 2013a) suggests that the relevance and value of a formal internal audit department as a governance function is still largely an unsettled matter. This study is important because it shows empirically, the value relevance of internal audit as a governance function at a time when corporate governance failures continues to show both the importance and the difficulty of getting "it" right.

Invariably, the quality of leadership and related governance is challenged when companies fail. Key governance regulation has often been reactionary thus only implemented after something goes wrong.[1] While a reactionary approach may not be optimal, stakeholders cannot ignore information that suggests that there may be a significant weakness in governance. Since the corporate scandals and failures of the late 1990s and early 2000s, corporate governance has received significant focus from regulators, researchers, management, and academics.

[1] For example, key auditing standards related to inventory and accounts receivable were created in response to fraud. The Dodd–Frank Wall Street Reform and Consumer Protection Act was signed into law in 2010 as a response to the financial crisis that began in 2007-2008.

Regulators have since implemented requirements intended to increase and enhance the role of all four governance pillars.[2] In 2003, the NYSE required listing firms to have an internal audit function.

The importance of corporate governance has been further fueled because of the financial crisis that started in late 2007 – early 2008. Regulators have since further acknowledged the key role that internal audit can play in improving corporate governance. As an example, the Board of Governors of the Federal Reserve System continues to emphasize the importance of an effective internal audit function and in January 2013, the Federal Reserve provided supplemental guidance to enhance institutions' internal audit practices (FRB: Supervisory Letter SR 13-1/CA13-1 on supplemental policy statement on the internal audit function and its outsourcing).

In February 2013, NASDAQ proposed requirements (the Proposed Rule) stating that companies listed on its exchange must have a formal internal audit department that reports to the audit committee (Securities and Exchange Commission [SEC] 2013b). The purpose of the Proposed Rule was to ensure that listed companies have a mechanism in place to regularly review and assess their system of internal control and thereby identify any weaknesses and develop appropriate remedial measures. In May 2013, NASDAQ withdrew the proposal (Securities and Exchange Commission [SEC] 2013a). One of the primary reasons for withdrawing the proposal was the nature and extent of pushback in the letters received during the comment period. It was clear that several stakeholders saw the cost of implementing an IA function as significant and did not perceive the value of internal audit (at least as proposed by

[2] The following are examples of such regulations: The Sarbanes-Oxley Act of 2002 increased management accountability for the completeness and accuracy of financial statements by requiring CEO and CFO certifications. Disclosures related to Sections 406 and 407 of the Sarbanes-Oxley Act of 2002 require public companies to disclose information regarding the presence of financial experts on their audit committee. In an effort to strengthen auditor independence, the Act restricted auditors from providing most consulting services to their public-company audit clients.

NASDAQ) as outweighing the related costs. Several of the comment letters called for more research that demonstrated the value of internal audit in the NASDAQ setting.[3]

Given the definition and recent increase in the profile and role of internal audit as a governance function (Anderson et al. 2012), the level of pushback from business managers was, on the surface, somewhat surprising. However, while there is extensive literature on governance, research specifically focusing on the contribution of internal audit to financial reporting and internal controls is somewhat limited.[4] This is fact is also noticeable when the volume of research literature on internal audit is compared to the volume of literature on the impact of external audit and related characteristics on financial reporting outcomes.[5] In this context, the negative responses to the Proposed Rule and the call for further research is not surprising. Part of the issue is that even though internal auditing is on balance seen as an important governance function, organizations struggle to assess the propriety of their investment in internal audit (Anderson et al. 2012). Decentralized firms in the retail & consumer products and technology industries, with revenue in excess of $1 billion, spend 0.05%-0.10% and 0.02%-0.07% of annual revenues on internal audit, respectively (GAIN 2016). A firm with revenues of $20 billion may spend upwards of $10 million on internal audit. A firm's typical investment in internal audit cannot therefore be deemed as inconsequential. In a 2014 presentation, the IIA provided data showing that companies are continuing to invest in internal audit (based on increases in year over

[3] See Appendix B for examples of comment letter responses.

[4] Gramling et al. (2004) highlighted the dearth of extant internal audit literature focused on internal audit's impact on financial reporting. Since their study was published, there have been several subsequent studies that answered the call for more focus in this area (see for example Prawitt, Smith, and Wood 2009; Lin, Pizzini, Vargus, and Bardhan 2011; Ege 2015).

[5] The audit literature includes numerous studies on audit quality and the related impact on financial reporting quality. For example, auditor size has been established as a reasonable proxy for audit quality since DeAngelo (1981). More recent work has shown the relationship between audit quality and earnings management (e.g., Becker et al. 1998); further refined audit quality and shown that audit firm office specific quality impacts financial reporting results (Choi et al. 2010); and highlighted that audit quality issues may be systemic and persist at certain auditor offices over time (Francis and Michas 2012).

year budget and staffing) and that audit committee oversight and interaction has not been stronger (Chambers 2014). However, concerns about the value delivered by internal audit was noted as one of the critical challenges facing the internal audit profession.

The internal audit profession is clearly at a crossroad (Chambers 2014) and the NASDAQ's withdrawal of the proposed rule was a disappointment to members of the internal audit profession (Chambers 2015). After reviewing several of the comments on the SEC's website, the IIA President and CEO concluded that several stakeholders did not have a clear understanding of the role internal audit plays or can play in corporate governance (Chambers 2013). This study provides empirical evidence to better assess the conjectures made by stakeholders in response to the Proposed Rule. More specifically, the purpose of this study is to evaluate the impact of internal audit on the control environment of firms that have voluntarily implemented an internal audit function consistent with the spirit of the proposed NASDAQ rule. In so doing, the study provides evidence of the important role internal audit plays in the corporate governance of NASDAQ firms and its potential role should the SEC require that all NASDAQ firms implement an internal audit function. More broadly, the study also adds to a limited body of research on the impact of internal audit, a key governance function, on financial reporting quality.

For a sample of NASDAQ firms, I identify whether the firm generally met the requirements of the Proposed Rule and assess the relationship between the presence of an internal audit function and the likelihood of reporting a material weakness in internal controls. I focus on both Sarbanes-Oxley (SOX) Section 302 and 404 material weaknesses. A material weakness is defined as "a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the

company's annual or interim financial statements will not be prevented or detected on a timely basis (Public Company Accounting Oversight Board ["PCAOB"]2007). For SOX 404, management and auditors perform an annual assessment of internal controls over financial reporting to identify deficiencies or material weaknesses.[6] SOX 302 requires the management of a company to quarterly assess the effectiveness of the company's disclosure controls and procedures that go into making any and all required public disclosures (Bonaldi 2016). Ultimately, disclosure controls and procedures ensure that all material information, including those related to financial reporting, is made known on a timely basis. SOX 302 assessments are the responsibility solely of management; auditors do not opine on the effectiveness of SOX 302 disclosure controls (Bonaldi 2016).

Hammersley, Myers, and Shakespeare (2008) show that there is negative price reaction from the market when a Section 302 material weakness is disclosed, while Dhaliwal et al. (2011) show that a firm's cost of borrowing increases after the disclosure of a Section 404 material weakness. Thus, as noted by Bedard and Graham (2011), firms are negatively impacted when either Section 302 or 404 material weaknesses are disclosed. I predict and find that NASDAQ firms with an internal audit function are more likely to report a SOX 302/SOX404 material weakness, indicative of internal auditing fulfilling its role as an objective governance function and adding value by bringing to the forefront material issues that may have otherwise gone unaddressed. To further analyze internal audit's impact on financial reporting, I assess the impact of internal audit on earnings management proxied by the absolute value of discretionary accruals.

[6] SOX 404(a) requires management to report on the effectiveness of internal control over financial reporting. SOX 404(b) requires auditors to attest to the effectiveness of internal control over financial reporting (applies only to accelerated filers).

I predict and find that firms with internal audit have lower discretionary accruals providing evidence that internal audit reduces earnings management in NASDAQ firms.

Based on responses in the comment letter, cost containment is critical to many NASDAQ firms and the costs associated with implementing an internal audit function was a significant prohibitive factor for those who did not support the Proposed Rule. However, external audit can rely on the work of internal audit and thereby reduce firms' external audit fees (Abbott et al. 2012). Given the importance of cost containment to NASDAQ firms, those with internal audit may be taking advantage of the opportunity to reduce external audit fees. I evaluate the association between the presence of an internal audit function and audit fees to determine whether firms with internal audit pay lower audit fees. I find that NASDAQ firms with internal audit pay higher audit fees than firms that do not have an internal audit function. Prior archival research[7] that have found a positive relationship between audit fees and internal audit have explained the relationship as indicative of increased demand for quality monitoring by firms with an internal audit function; however, no prior studies have demonstrated what actual benefit firms receive from IA as an added or complimentary monitoring function to the external auditor. Particularly in the NASDAQ setting where it appears that many firms are very sensitive to costs, why would firms choose to add a redundant monitoring function in internal audit? This study finds that the internal audit function is not redundant given the presence of external audit but rewards the increased demand for quality monitoring with incremental risk identification and assessment coverage.

I also analyze the factors that influence a firm's decision to implement an internal audit function. Prior research has shown that regulation can have several unintended consequences

[7] For example, see Goodwin-Stewart and Kent 2006.

(Watts 2003). It is therefore important to have a reasonable understanding of the current state before implementing regulations geared towards improving the current state. This study finds that the presence of internal audit in NASDAQ firms is positively associated with leverage, a proxy for the demand for monitoring, as well as complexity as measured by size, suggesting that there exists some rationale and potentially acceptable internal audit implementation decision-making process already in place. While prior archival studies point to an increased demand for quality monitoring to explain the positive relationship between audit fees and internal audit, they do not empirically or otherwise provide any insight into the source of this additional demand for monitoring. This study points to debtholders as an important source of the increased demand for quality monitoring that leads NASDAQ firms to adopt an internal audit function.

Given the continued focus on corporate governance and the emphasis on internal audit, it is both important and timely to assess the contribution of internal audit in the NASDAQ setting. This study adds to the existing body of research on internal audit and provides further insights related to the question on the value internal audit delivers. To the best of my knowledge this is the first study that assesses the impact of internal audit in a voluntary setting. The study is important to regulators and managers alike who seek to improve corporate governance and maintain investor confidence in financial reporting. The study is also important to practitioners and related stakeholders who want to maintain the profile and relevance of the internal audit profession as well as accounting firms that invest in developing internal audit services.

II. BACKGROUND AND HYPOTHESES DEVELOPMENT

Carey, Simnett, and Tanewski (2000) studied the voluntary demand for internal and external auditing by family business. Their findings suggest that in the family business

environment, internal and external audit are often viewed as substitutes rather than complimentary monitoring mechanisms. Based on several of the comments letters sent to the SEC on the Proposed Rule, it seems that many firms viewed an internal audit function as unnecessary given the presence of an external auditor and management's role in the financial reporting and external audit process. Whether internal audit provides incremental improvement in financial reporting given the mandatory requirement of an external audit is an empirical question.

A few earlier studies suggested that the internal audit function, including its related characteristics and activities, does not act as a significant governance mechanism (Churchill and Cooper 1965; Uecker, Brief, and Kinney 1981). More recent studies have generally found that the internal audit function can have a positive influence on corporate governance, including financial reporting quality and firm performance (Gramling et al. 2004). For example, Schneider and Wilner (1990) found that internal audit acted as a deterrent to financial reporting irregularities and its effect was similar to that of external audit in this regard. However, Gramling et al. (2004) point to the need for further research on the association between internal auditing and financial reporting results, including the relationship between internal audit quality and the presence of significant deficiencies or material weaknesses in internal control over financial reporting.

Using a sample of 214 firms, Lin et al. (2011) find that the nature and extent of certain internal audit activities can play either a preventive or detective role with respect to SOX 404 control weaknesses. Specifically, they find a positive relationship between material weakness disclosures and both the rating of reports by the internal audit function and the level of external-internal auditor coordination. Adverse report ratings point to potentially problematic areas and if

there is good coordination between the internal audit and the external audit teams, the teams are more likely to discuss the results of these reports in detail. This gives the external auditors added insight into risk areas allowing them to identify previously unreported control weaknesses. Lin et al. (2011) also find that material weakness disclosures are negatively associated with the extent to which internal audit follows up on previously identified control problems. The greater the emphasis on follow-up, the more efficiently previously identified issues are resolved.

In this study, I do not evaluate specific internal audit characteristics. Instead, I evaluate the impact of the average quality of NASDAQ internal audit functions (i.e., absent any regulatory requirements). In assessing the current state, it is important to understand the impact of the average internal audit function NASDAQ firms have optionally implemented. Based on the findings in Lin et al. (2011), the internal audit function's first order objective related to SOX 404 is to identify control issues. Bedard and Graham (2011) find that clients detect fewer internal control deficiencies than their auditors and suggest that the independence and objectivity of the external auditor results in more internal control deficiencies being reported. Zhang, Zhou, and Zhou (2007) find that auditor independence is positively related to the disclosure of internal control weaknesses. As previously mentioned, the IIA (2007) defines internal audit as an independent, objective assurance and consulting activity. Given the similarity in governance effect of internal and external audit (Schneider and Wilner 1990), I expect that the presence of an internal audit function will result in the identification of SOX 404 material weaknesses that may have otherwise gone unidentified. This leads to my first hypotheses:

H1a: The likelihood that a NASDAQ firm reports a SOX 404 material weakness is positively associated with the existence of an internal audit function.

Using a sample of smaller accelerated filers, Bedard and Graham (2011) find no relationship between the presence of an internal audit function and the detection and severity classification of SOX 404 internal control deficiencies. In addition to only using accelerated filers, another limitation of their study was that the engagements in their sample were performed under Auditing Standard (AS) No. 2, which was later superseded by AS No. 5. One objective of AS No. 5 was to increase audit efficiency by focusing the auditor on high risk areas (PCAOB 2007). AS No. 5(now AS 2201) also provided the auditor with guidance related to relying on the work of others (e.g., internal audit) and thus may have encouraged greater coordination between internal audit and the auditor in order to minimize duplication of effort. For example, auditors can rely on the internal audit function to cover areas that are important but not of the highest risk. Indeed, Wang and Zhou (2012) find evidence that AS No. 5 improved the efficiency of internal control audits.

Bedard and Graham (2011) do find that clients detect fewer internal control deficiencies than auditors and tend to classify internal controls deficiencies identified as less severe than the auditor's rating. They further state that many control flaws likely to affect financial reporting would not be found in a client-driven process such as Section 302. Lin et al. (2011) exclude Section 302 material weakness from their analysis because, relative to SOX 404, these disclosures are subject to less regulation and allow greater management discretion as noted by Ashbaugh-Skaife et al. (2007) and Hoitash et al. (2009). Given that managers have more discretion over SOX 302 disclosures and tend to understate the severity of internal control weaknesses, it is likely that companies without a formal internal audit function providing an added layer of objectivity will tend to under report SOX 302 material weaknesses; hence my next hypothesis:

H1b: The likelihood that a NASDAQ firm reports a SOX 302 material weakness is positively associated with the existence of an internal audit function.

The quality of financial reporting may be adversely affected when management opportunism and discretion is not constrained [see, for example, (Hung 2000)]. Prawitt, Smith, and Wood (2009) find a negative association between internal audit quality and earnings management, as measured by the absolute value of discretionary accruals, indicative of internal audit working to restrict earnings management and thereby improve the quality of financial reporting. At the extreme, earnings management becomes fraudulent financial reporting. Beasley, Carcello, Hermanson and Lapides (2000) find that the presence of an internal audit function is associated with lower incidence of fraud. They focus on the technology, healthcare and financial industries; their results suggest that internal audit works more effectively as a fraud deterrent in technology firms, followed by healthcare firms. Technology and healthcare firms constitute a significant percentage of NASDAQ firms. They represent 42% and 14% of all firms, respectively (NASDAQ 2016). As previously stated, valuable insight can be obtained by empirically assessing the impact of the average quality of currently implemented NASDAQ internal audit functions on financial reporting. This leads to the following hypothesis:

H2: The presence of an internal audit function is associated with lower earnings management.

The difference in directional predictions of H1 and H2 may need some added clarification. How can internal audit play a detective role in identifying controls weaknesses that exists while simultaneously playing a preventive role by constraining management opportunism? The identification of control weaknesses is a direct output of the primary function of internal audit; that of gaining an understanding of and evaluating existing business/accounting processes. This

is inherently a detective/monitoring role. However, as a byproduct of internal audit's previous and planned work, management discretion is constrained. Management's knowledge that their decisions may become in scope for internal audit review can influence those decisions and ultimately constrain opportunism. Further, internal audit's findings in areas where management exercises judgment can cause management to become more prudent in their future decision making. Appendix C contains a real world example of internal audit's simultaneous roles of detecting control issues and preventing/reducing management opportunism.

There was a general concern expressed in the comment letters that it was cost prohibitive to implement an internal audit function. Additionally, several stakeholders saw the addition of an internal audit function as redundant given the existence of the external auditor. To that end, AS5 encourages external auditors to rely on the work of other monitoring functions such as internal audit. If external auditors relied on the work of internal auditors, then internal audit may help to pay for itself through the reduction of external audit fees. Prawitt, Sharp, Wood (2011) point out that extant experimental and survey-based studies provide quite consistent evidence that external auditors do leverage the auditing standards to identify bases for relying on internal auditors and this reliance results in lower audit fees. However, as also noted by Prawitt, Sharp, and Wood (2011), extant archival research typically find either no relationship [e.g., Willekens and Achmadi (2003); Ezzamel et al. (2002); Ahmed (2000); Anderson and Ze´ghal (1994); Chung and Lindsay (1988)] or a positive relationship [e.g., Goodwin-Stewart and Kent (2006); Adams et al. (1997); Deis and Giroux (1996); Anderson and Ze´ghal (1994)] between the internal audit function and external audit fees. Goodwin-Stewart and Kent (2006) suggest that the positive relationship between internal audit quality and audit fees is reflective of an increased demand for higher quality auditing by firms.

Prawitt, Sharp, and Wood (2011) attempt to reconcile the difference in these findings and note that external audit fees are reduced when internal auditors work directly for the external auditors as assistants. The degree to which internal auditors at NASDAQ firms are used as assistants by external auditors is not known. This leads to the following null hypothesis:

H3: There is no association between the presence of an internal audit function and the external audit fees of NASDAQ firms.

Based on the comment letters (examples are included in Appendix B), firms wanted explicit evidence to support the Proposed rule; several of the comment letters stated that the NASDAQ did not provide any evidence on how internal audit would benefit NASDAQ firms after the Proposed Rule was effective. By its own definition, internal audit is expected to have a positive impact on a firm and implicit in the NASDAQ's proposal was a statement that there was a gap in risk assessment and monitoring in firms that do not have an internal audit function. However, regulation can have unintended consequences which can be either positive or negative (Watts 2003; Arya et al. 2005; Linck, Netter, and Yang 2009; Gao, Wu, and Zimmerman 2009). The comment letter from Cytokinetics stated that more regulations may not lead to better outcomes. Like others, the comment letter questioned the propriety of using limited resources for internal audit. Further, this comment letter implied that the risks that internal audit would focus on were relatively small. That leads to the following question: Are NASDAQ firms making appropriate and systematic decisions about their use of internal audit as a governance and risk management function? If such is the case, then mandating the implementation of internal audit may adversely affect a potentially acceptable situation.

Several comment letters suggest that the Proposed Rule emphasizes form over substance. This may be a self-fulfilling prophecy. The institutional organization theory suggests that firms

will often emphasize ceremonial (i.e., form over substance) governance roles to fulfill the need for legitimacy (Cohen, Krishnamoorthy, and Wright 2008). Companies have also been known to announce plans to implement a governance policy that has achieved legitimacy but fail to actually implement the policy (Westphal and Zajac 2001). Based on institutional theory, if the Proposed Rule is enacted, there is a risk that firms currently without an internal audit function may create a function to simply meet the form of the requirement without any intention of sufficiently investing in the function in order to obtain the intended benefits. It is therefore important to understand the current state of the environment before enacting legislation geared towards improving it. Comparing and contrasting the characteristics of firms who have voluntarily implemented an internal audit function with the characteristics of firms who have not, will inform stakeholder understanding of the current environment and the potential costs associated with the Proposed Rule. Hence the following research question:

R1: What are the characteristics of firms that have voluntarily implemented an internal audit function relative to those that have not?

III. SAMPLE AND RESEARCH DESIGN

Sample

Data on whether firms have an internal audit function was hand collected; because data on the presence of internal audit had to be hand collected, data was collected for 2014 and 2013, the two most recent years at the time of data collection In July 2015, I obtained a list of firms trading on the NASDAQ from the NASDAQ website. This provided an initial sample of 3,058 firms. I then removed firms for which there were no related Compustat data. Given that the study focuses on voluntary adoption of internal audit, I removed firms from regulated industries, namely financial and utility firms with SIC ranges 6000-6999 and 4800-4999, respectively.

Additionally, I removed firms that were not headquartered in the United States. This resulted in a sample of 1,583 firms or 3,166 firm-years to analyze for the presence of an internal audit function.

To determine whether a firm had an internal audit function, I reviewed the 2013 and 2014 proxy statement and the current version of the Audit Committee Charter. To extent both documents consistently referred (did not refer) to an internal audit function, the firm was initially noted as having (not having) an internal audit function and missing IA information, otherwise. As a secondary check, I searched LinkedIn for employees working for an internal audit department at the firm. If LinkedIn indicated that an internal audit function was present, the initial coding was updated if necessary.

Audit Analytics was used as the source for Sarbanes-Oxley material weakness disclosures, firms' status as an accelerated filer, and audit firm related variables. All variables are defined in Appendix A. After removing firms-years with missing internal audit information and observations with insufficient or missing data for required variables, my sample consists of 948[8], 1,224, and 1,229 firm-year observations for H1, H2, and H3, respectively. My sample section process is described in further detail in Table 1.

[INSERT TABLE 1 HERE]

Financial Reporting Quality – SOX404/302 Disclosures

As noted in Section II, I expect firms with an internal audit function to be more likely to disclose a material weakness. Using a logistic regression, I estimate the probability that a NASDAQ firm

[8] Approximately 400 observations were removed due to missing segment and acquisition data. The findings for H1 (based on Equation 1) remain the same if missing values are recoded to 0.

reports at least one material weakness between 2013 and 2014. I model the probability of disclosing a SOX 404/302 material weakness as a function of the following firm characteristics:

$$Prob(MW) = f(\beta_0 + \beta_1 IA + \beta_2 TotalAssets + \beta_3 AccelFiler + \beta_4 Altz + \beta_5 AggLoss + \beta_6 ForTrans + \beta_7 Seg + \beta_8 Acquival + \beta_9 SalesGrowth + \beta_{10} Restr + \beta_{11} FirmAge + \sum_{k=1}^{K} \gamma_k Industry) + \sum_{k=1}^{K} \gamma_k Year) \quad [1]$$

All variable are defined in Appendix A. The dependent variables, MW404 and MW302, are binary variables that takes the value 1 if the firm reported a SOX 404 or SOX 302 material weakness, respectively, during the testing period, and 0 otherwise. The independent variable of interest, IA, is an indicator variable that takes the value 1 if the firm had an internal audit function during the testing period, and 0 otherwise.

Control variables are based on the findings of Doyle, Ge, and McVay (2007) who study the determinants of material weaknesses. Firms that are smaller (proxied by total assets) financially weaker (proxied by an indicator of aggregate loss and Altman's Z), more complex (segments and foreign transactions) and going through changes (sales growth, acquisitions, and restructuring charges) are more likely to disclose a material weakness. I also included a variable that indicates whether the firm was an accelerated filer. Comments on the Proposed Rule suggested that the mandatory requirement to have an internal audit requirement only be implemented for accelerated filers. Supporters of this position argued that just as SOX 404(b) was made optional for non-accelerated filers to alleviate the burden associated with compliance, the Proposed Rule should be implemented in similar fashion. It is not clear ex-ante what the impact of the firm's filing status is on the likelihood of a material weakness. Accelerated filers are relatively larger firms with greater resources and should therefore be less likely to report a material weakness. SOX 404(b) also requires the auditors attest to the firm's internal control. This additional effort by the auditors may reveal material weaknesses that would have otherwise

gone undetected. I therefore make no prediction on the relationship between filing status and the likelihood of a material weakness.

Financial Reporting Quality – Earnings Management

I expect firms with an internal audit function to have lower levels of earnings management proxied by the absolute value of discretionary accruals (ABSDA) and performance-matched discretionary accrual (ABSPMDA). I estimate the following model to assess whether NASDAQ firms with internal audit functions have lower discretionary accruals:[9]

$$ABSDA|ABSPMDA = f(\beta_0 + \beta_1 IA + \beta_2 ROA + \beta_3 Lev + \beta_4 CURR + \beta_5 MVE + \beta_6 MKTBK + \beta_7 CFO + \beta_8 SDCFO + \beta_9 AggLoss + \beta_{10} LIT + \beta_{11} Altz + \beta_{12} LagTACRR + \beta_{13} ShortTenure + \beta_{14} Big4 + \sum_{k=1}^{K} \gamma_k Year) \quad [2]$$

Equation [2] is based on Bills, Cunningham, and Meyers (2016). All variables are defined in Appendix A. I calculate discretionary accruals using the modified Jones model (Jones 1991; Dechow, Sloan, and Sweeney 1995).) Performance-matched discretionary accruals are calculated based on Kothari, Leone, and Wasley (2005), as the difference between company *i*'s firm-year discretionary accrual and that of another firm from the same two-digit SIC code and year with the closest return on assets (ROA) in the current year.

[9] Consistent with Bills, Cunningham, and Myers (2016) I use the following model to calculate discretionary accruals: $TA_{it}/A_{it-1} = f(\alpha_1 A_{it-1} + \alpha_2((\Delta S_{it} - \Delta AR_{it})/A_{it-1}) + \alpha_3 PPE_{it}/A_{it-1} + \mu_{it}$, where TA is total accruals (calculated as income before extraordinary items minus operating cash flows from continuing operations) from Hribar and Collins (2002); A is equal to total assets; Δ*S* is equal to year over year change in sales; Δ*AR* is equal to year over year change in accounts receivable; PPE is equal to property, plant, and equipment net of depreciation; μ_{it} is equal to discretionary accruals; and *it* identifies the firm-year.

Audit Fees

I use the following model to assess the relationship between the presence of an internal audit function and audit fees:

$$LAFEES = f(\beta_0+\beta_1 IA+\beta_2 TotalAssets+\beta_3 SEG+\beta_4 CATA+\beta_5 QUICK+ \beta_6 LEV+\beta_7 ROI+\beta_8 LOSS+\beta_9 GC+\beta_{10} ForTrans+\beta_{11} DECYE+\beta_{12} AccelFiler+ \beta_{13} ShortTenure+\beta_{14} FirmSize+\beta_{15} MKTSHR+\beta_{16} ClientImport+\sum_{k=1}^{K} \gamma_k Industry+ \sum_{k=1}^{K} \gamma_k Year) \quad [3]$$

Equation [3] is based on Bills, Cunningham, and Meyers (2016). All variables are defined in Appendix A.

Characteristics of NASDAQ Firms with An internal Audit Function

To assess the characteristics of NASDAQ firms that choose to implement internal audit, I use the following model:

$$Prob(IA) = f(\beta_0+\beta_1 Lev+\beta_2 InstitOwn+\beta_3 TotalAssets+\beta_4 AccelFiler+ \beta_5 Altz+\beta_6 AggLoss+\beta_7 ForTrans+\beta_8 Seg+\beta_9 Acquival+\beta_{10} SalesGrowth+ \beta_{11} Restr + \beta_{12} FirmAge + \sum_{k=1}^{K} \gamma_k Industry) + \sum_{k=1}^{K} \gamma_k Year) \quad [4]$$

Factors that influence whether a firm reports a material weakness may also influence a firm's decision to implement an internal audit function. In equation [4], I regress IA on leverage, institutional ownership, and the remaining variables of equation [1]. All variables are defined in Appendix A. I include leverage and institutional ownership as proxies for the demand for monitoring. Given that internal audit is a monitoring function, I expect higher levels of leverage and institutional ownership to increase the probability that a firm implements an internal audit function.

IV. RESULTS

For each model, I separately display and discuss descriptive statistics, results of univariate analyses, and multivariate results.

Financial Reporting Quality-SOX404/302 Material Weakness

Table 2 presents descriptive statistics of the variables based on whether the firm reported a material weakness. Panel A provides information based on SOX 404 material weaknesses and Panel B provides information based on SOX 302 material weaknesses. The table also provides the results of one-tailed tests of differences (when direction is predicted, two-tailed otherwise) between the material weakness and no material weakness groups using both t-tests and Wilcoxon rank-sum tests. The summary statistics for each of the logged variables (TotalAssets, Seg, and Age) are converted to unlogged amounts for ease of interpretation.

Based on the univariate results, the presence of an internal audit function (IA) is not associated with the likelihood of a firm disclosing either a SOX 404 or a SOX 302 material weakness. However, as reflected in Table 3, many of the variables are correlated with one another. Given the existence of these relationships, I further evaluate IA and the other potential determinants of material weaknesses using a multivariate analysis.

The univariate results on firm size, measured by total assets, are as predicted. Smaller firms are more likely to report a SOX 302 or a SOX 404 material weakness. Firms with a material weakness are less likely to be accelerated filers. As predicted, firms that are weaker financially (Altz, AggLoss) are more likely to report a SOX 302 or a SOX 404 material weakness. Measures of complexity (ForTrans, Seg) were not significantly associated with the likelihood that a NASDAQ firm reports a material weakness. In terms of change, Restr is not

significantly associated with the likelihood that a firm reports a material weakness. However, while neither Acquival nor SalesGrowth was significant in the predicted direction, they were both highly significant in the other direction using two-tailed tests. Specifically, NASDAQ firms with higher growth rates and more acquisitions are less likely to report a SOX 302 or SOX 404 material weakness. Naturally, a firm's ability to make acquisitions and have positive sales growth are not only proxies for change but also proxies for the resources available to the firm. These results, combined with those related to size and financial health, suggest that resources may be the key determinant of whether NASDAQ firms report a material weakness; however, and as aforementioned, this and whether internal audit has an incremental effect on the likelihood that a firm reports a material weakness will be reevaluated in a multivariate analysis below.

[Insert Table 2 about here]

[Insert Table 3 about here]

The correlation matrix (Table 3) includes both Pearson and Spearman coefficients. Similar to the results from Table 2, the correlation matrix also shows that larger and more financially healthy firms are less likely to report a material weakness as are firms that are growing (via sales or acquisition). Table 3 also shows that older firms are less likely to report a material weakness.

The results from estimating Equation [1] are presented in Table 4. The dependent variables MW404 and MW302 are in column 1 and column 2, respectively. NASDAQ firms with internal audit constitute approximately 71% of the sample. The models are a good fit based on the area (0.863 and 0.807, respectively) under the receiver operating characteristic (ROC)

curve (Hosmer and Lemeshow 2000). As predicted and in support of H1a[10], the presence of an internal audit function is positively associated with the probability that a firm reports a SOX 404 material weakness. The impact of IA on the probability of reporting a SOX 404 material weakness is also economically significant. The coefficient estimate suggests that firms with an internal audit department are almost two and a half times more likely ($e^{1.231}$-1) to report a SOX 404 material weakness. The findings from Table 4 are indicative of internal audit serving as an objective monitoring function that identifies and raises awareness to weakness in the control environment so that these weaknesses may be appropriately resolved, or at a minimum, be disclosed in the financial statements.

For the control variables, size (TotalAssets) is negatively associated with likelihood of reporting a SOX 404 material weakness. Financial distress (Altz) is also statistically significant in the predicted direction indicating that firms in weaker financial health (lower Z-score) are more likely to report a material weakness. AggLoss is not statistically significant while SalesGrowth is negative (opposite to prediction) and statistically significant with p-values less than 0.05 under two-tailed tests. This result suggests that firms with higher sales growth are less likely to report a SOX 404 material weakness, and is consistent with the finding that financial health is a key determinant of the strength of internal controls in NASDAQ firms. The proxies for complexity (ForTrans and Seg), were not statistically significant.

The findings in column 2 are similar to those in column 1. H1b is supported; the presence of an internal audit function increases the probability that a firm reports a SOX 302 material weakness. The coefficient estimate suggests that firms with an internal audit department are

[10] The results for both H1a and H1b are robust to the inclusion of audit quality (Big 4) as a control variable.

approximately 100% more (or twice) as likely ($e^{0.778}$-1) to report a SOX 302 material weakness. The results on the control variables are also similar with one notable difference. Sales growth is not significant while AggLoss is significant and positive, as predicted; firms with losses are therefore more likely to report SOX 302 material weakness.

[Insert Table 4 about here]

Financial Reporting Quality – Discretionary Accruals

Univariate results in Table 5 suggest that internal audit reduces earnings management; firms with an internal audit function have lower discretionary accruals. The means of the control variables for IA firms are statistically different from those of non-IA firms suggesting that internal audit firms are systematically different from non-internal audit firms. For example, internal audit firms have positive and steadier cash flow from operations (based on SDCFO) and higher return on assets.

Based on the multivariate results in Table 6, IA is negatively associated with discretionary accruals, as predicted; however, the relationship is only marginally significant ($p<0.1$). The predicted signs of the coefficients in Table 6 are largely based on Reichelt and Wang (2010). While some controls have signs other than predicted, the signs on these coefficient (with the exception of the coefficient on TACCR_LAG) are consistent with Bills, Cunningham, and Meyers (2016). Overall the results of the two discretionary accrual models are as expected and consistent with prior literature. A higher variability in cash flow (SDCFO) is associated with higher discretionary accruals suggesting that firms use their discretion over accruals to smooth earnings results; the more volatility there is in cash flow the more accruals are needed to smooth earnings results. A negative coefficient on past accruals (TACCR_LAG) suggests that the more a

firm has used accruals in the past (TACCR_LAG) to smooth earnings, the less discretion the firm will have over current accruals as accruals will eventually have to reverse. Firms that are financially healthier (ROA and Altz) or that have higher quality auditors (Big4) have lower discretionary accruals. Firms more likely to be considered growth firms (MKTBK) with therefore greater expectation from the market are associated with higher discretionary accruals.

[Insert Table 5 about here]

[Insert Table 6 about here]

Audit Fees

Approximately 72% of NASDAQ firms have an internal audit function and these firms, on average, pay higher audit fees (based on the univariate results in Table 7). Once again the means of the control variables are statistically different giving further support to there being systematic differences between IA and non-IA firms in the NASDAQ.

Multivariate results in Table 8 (column 1) indicate that the presence of an internal audit function is positively related to audit fees. NASDAQ firms with internal audit pay approximately 20% more in audit fees on average. All the control variables (except ClientImport) have the predicted sign and most are highly significant resulting in an R-squared of approximately 84%. NASDAQ firms with an internal audit have an increased demand for monitoring as evidenced by their higher audit fees. Consistent with prior research such as Goodwin-Stewart and Kent (2006), NASDAQ firms use internal audit as a complementary monitoring function to the external audit. Further, given my results in support of H1a and H1b, the added cost of internal audit does produce added value.

[Insert Table 7 about here]

[Insert Table 8 about here]

The finding that firms with an internal audit function also pay more in external audit fees is not inconsistent with the suggestion that firms with known internal control issues adopt an internal audit function and also pay more in audit fees to have these issues first clearly defined, and ultimately resolved. This suggestion alludes to presence of material weaknesses driving the demand for internal audit. To empirically rule out this alternative explanation I include MW302 and MW404 in Equation [3] (regression of audit fees on internal audit) to control for the presence of material weaknesses. The results are also reflected in Table 8 (column 2). After controlling for the presence of a material weakness, the coefficient on IA remains positive and significant demonstrating that the demand for higher quality monitoring using internal audit is not solely (if at all) driven by the presence of internal control issues.

Characteristics of NASDAQ Firms Adopting Internal Audit

Notwithstanding the findings of the multivariate analysis, whether a mandatory requirement to implement an internal audit function will yield expected results is still an open question. The Proposed Rule may improve the existing dynamics or have unintended negative consequences. Addressing R1 (using Equation [4]) and thus understanding the characteristics of firms that have voluntarily implemented an internal audit function relative to those that have not provides insight into whether there is a systematic decision making process in play within the current environment. In addition to the control variables in equation [1], equation [4] also includes leverage and institutional ownership. Studies have shown that lenders and institutional owners act to mitigate agency risk by increasing monitoring or reducing opportunity for management discretion (Ramalingegowda and Yu 2012; Gul and Tsui 1997; Shleifer and Vishny

1997; Jensen and Meckling 1976). Leverage and institutional ownership therefore serve as proxies for the demand for monitoring by stakeholders with relatively less direct input into the day to day operations of the firm.

As we have already seen in Table 5, NASDAQ firms with internal audit have differing characteristics from those without. Based on the univariate results (Table 9), IA firms are larger (Total Assets), more complex (Segments and Foreign Operations) and undergo more changes (Restructuring and Acquisitions). They are financially healthier; they are less likely to have losses and have higher sales growth. IA firms are more leveraged and have a higher percentage of institutional ownership. The higher presence of these investor groups in IA firms is indicative that IA is being used to fulfill a monitoring role in firms where the demand for monitoring is relatively higher. The consistency of these differences between IA and non-IA firms suggests that perhaps there is already in place a systematic and valid process relating to a firm's decision to implement an internal audit function; as a firm's size, risk profile (complexity/change), and financial health increases there is a need for and greater ability to provide additional monitoring which is being fulfilled, at least in part, by an internal audit function.

[Insert Table 9 about here]

Table 10 displays the multivariate results. While these results temper the findings from Table 9, key elements remain. Consistent with the univariate results, the multivariate results indicate that IA firms are larger and more leveraged. Variables such as AggLoss, ForTrans, Seg, SalesGrowth, Restr and AccelFiler are not statistically significant. Interestingly, Altz is negative and statistically significant suggesting that firms that are financially weaker are more likely to have an internal audit function. It is not readily apparent what may be driving this result but it may indicate that there currently exists a demand for internal audit at firms that are in greater

need for operational improvements[11]; however, I cannot rule out the possibility that the result is due to a correlated omitted variable. The sign on ACQUIVAL has now changed to negative. Upon further investigation, this is due to the inclusion of TotalAssets, Lev, and InstititOwn. I also find that ACQUIVAL also has an inverted U relationship with IA.[12] At lower levels, as acquisitions increase firms are more likely to have an internal audit function. However, as acquisitions increase to much higher levels, these firms tend to not have an internal audit function. Thus as levels of acquisitions increase beyond levels consistent with a firm's size, leverage and institutional ownership, the relationship between acquisitions and the presence of an internal audit function is negative. This may suggest that firms that are making atypically large acquisitions (a proxy of risk), are less likely to see the need for an internal audit function. Thus there may be some high risk firms in the NASDAQ that are less than prudent about their risk management practices. On balance, however, the findings support the statement that as firms increase in size and leverage the demand for monitoring increases and this demand is being fulfilled in part by the adoption of an internal audit function. Regulators must then consider whether these current state dynamics are satisfactory in contrast to the potential benefits and costs associated with the Proposed Rule.

[Insert Table 10 about here]

[11] Recall that, according the IIA's definition, an internal audit function is also designed to add value and improve an organization's operations.

[12] To validate this, I squared ACQUIVAL and included this squared value in the multivariate model for Equation [4] (results not tabulated). The coefficient on ACQUIVAL is now positive (not significant) and the coefficient on the squared term is negative and significant.

Robustness Tests

Endogeneity concerns may arise if firms with SOX 404 or 302 weakness are more likely to implement an internal audit function (i.e., selection bias). However, given that the evidence suggests that IA firms tend to be larger and financially healthier and these types of firms are less likely to report a material weakness, endogeneity of this nature should not be a major concern.[13] However, from H3 we do find that firms with an internal audit function also pay more in external audit fees and this may suggest that firms with known internal control issues adopt an internal audit function and also pay more in audit fees to have these issues first clearly defined, and ultimately resolved. This alternative explanation has already been ruled using Table 8 (column 2). After controlling for the presence of a material weakness, the coefficient on IA remains positive and significant demonstrating that while material weakness conditions may drive higher audit fees, the demand for higher quality monitoring using internal audit independent of the presence of material weakness conditions is still significant.

Endogeneity issues may also arise due to omitted confounder variables (Terza, Basu, and Rathouz 2008). Specifically, there may be a variable omitted from equation [1] that impacts both a firm's decision to implement an internal audit function as well as the probability that the firm discloses a material weakness. I further demonstrate that my results are robust to concerns related to endogeneity by testing and controlling for potential endogeneity using a two-stage instrumental variable model. Leverage (Lev) is used as an instrument for IA. Debt holders do not have any effect on the internal control environment other than through monitoring mechanisms they require or engender at a firm. Internal audit is a monitoring function and

[13] For example, see Doyle, Ge, and McVay (2007).

leverage serves as a proxy for the demand for monitoring (Gul and Tsui 1997; Shleifer and Vishny 1997).

The first-stage is an auxiliary regression where IA is regressed on Lev and the other dependent variables of Equation [1]. For the second stage, the residuals from the auxiliary regression are then included as an additional variable (Resid) in equation [1]. Terza, Basu, and Rathouz (2008) show that for non-linear models, more consistent estimates are obtained from the second stage when the residuals from the first stage are included as regressors than by replacing the endogenous variables with first-stage predictors.

The results of the second stage are included in Table 11. The coefficient on Resid is not statistically significant indicating that endogeneity is not an issue. Further, H1a and H1b are still supported; the coefficient on IA is still positive and significantly associated with the probability that a firm discloses a SOX 404 or SOX 302 material weakness.

[Insert Table 11 about here]

Endogeneity is also a concern when modeling the relationship between internal audit and discretionary accruals; the decision to implement an internal audit may be dependent on one of the covariates in Equation [2] resulting in biased estimates. To address this concern I estimate the average treatment effects (ATE) of internal audit (IA) on the absolute value of performance-matched discretionary accruals (ABSPMDA) using propensity score matching. The results, (see Table 12), show that the coefficient on IA is still negative (-0.177) and statistically significant.[14]

[Insert Table 12 about here]

[14] Year fixed effects were excluded in order to obtain sufficient matches.

As with Equation [1], there may be omitted variables from Equation [2] that affect both the outcome (discretionary accruals) and the presence of an internal audit function. To demonstrate that my results are robust to these unobserved relationships, I run an endogenous treatment-regression model to control for potential correlation between unobserved variables that may affect the outcome and unobserved variables that may affect the treatment (IA). The determinants for internal audit (IA), the endogenous treatment, are the level of institutional ownership (InstitOwn), number of segments (Seg) and the other control variables from Equation [2]. Institutional Ownership serves as a proxy for monitoring (Ramalingegowda and Yu 2012). Given that internal audit is a monitoring function, firms with greater institutional ownership are more likely to have an internal audit department. Further, firms with more segments have more operations to monitor and are therefore more likely to have an internal audit function.

The results of the endogenous treatment-regression (see Table 13) show that the value of the coefficient on IA is still negative (-0.174) and significant. The coefficient on IA is also consistent across both treatment-effect models. Additionally, the null hypothesis under the Wald test of independent variables cannot be rejected. This implies that there is not a significant correlation between any omitted variables that affect discretionary accruals and any that affect internal audit adoption.

[Insert Table 13 about here]

Summary and Conclusion

Corporate governance is a critical component of the effective management of firms. Given the dynamic nature of the business environment, stakeholders including regulators, owners, and management must continually evaluate the governance structure to ensure that the

existing model efficiently and effectively mitigates risks that are significant to the business. The Proposed Rule seeks to improve corporate governance by requiring NASDAQ firms to implement an objective risk management function, namely internal audit.

In this study, I find that internal audit is positively associated with the likelihood of reporting both a Section 302 and 404 material weakness; thus in the NASDAQ, internal audit functions as an objective risk management oversight function that raises attention to issues that affect financial reporting quality. I also find that the presence of an internal audit function results in lower discretionary accruals, which serves as a proxy for earnings management. This finding supports the argument that internal audit improves the quality of financial reporting by constraining management's use of discretion.

I also find that the presence of an internal audit function is associated with higher audit fees, consistent with prior archival literature. This finding suggests that firms with internal audit are firms that desire higher quality monitoring of their financial reporting process and results. That firms with internal audit are more likely to report a material weakness and have lower discretionary accruals demonstrates that internal audit does appear to improve the quality of monitoring at firms that have chosen to implement an internal audit function. Internal audit is thus not a redundant governance function for NASDAQ firms but additive to the quality of corporate governance. To that end, I also evaluated the characteristics of firms that have adopted an internal audit function. I find that on average, firms that have chosen to implement an internal audit function have systematically different characteristics. These firms have a higher demand for monitoring, as evidenced by greater leverage and institutional ownership, they are larger, older, and financially healthier. These findings suggest that the decision to implement an internal

audit function is not random from firm to firm but based on a general set of characteristics that firms typically acquire over time.

A primary contribution of this study is to provide empirical evidence that can be used by stakeholders to assess the value of internal audit by way of its impact on the quality of the financial reporting of NASDAQ firms. While the findings suggest that internal audit improves the control environment by adding objectivity and increased monitoring, they do not suggest that the Proposed Rule would improve the current state of governance in NASDAQ firms as a whole. The findings suggest that internal audit currently fulfills a natural demand for monitoring within NASDAQ firms and that a systematic internal audit adoption decision making process may already exist among NASDAQ firms. If implemented, the Proposed Rule may have negative unintended consequences. For example, there is a risk that if implemented, the Proposed Rule may cause firms to implement internal audit functions that are of poorer quality (on average) than they would have otherwise implemented voluntarily as they grew in size and/or became more leveraged. When considering the costs of the Proposed Rule, regulators must also consider the potential costs associated with unintended management behavior.

This study also demonstrates that the recent focus on internal audit as a governance function has been warranted. The findings of the study show that internal audit in practice, at least in the NASDAQ setting, is meeting the objective as stated in the definition of internal audit by the IIA.

Appendix A

Variable Definitions

Variable		Definition
ABSDA	=	the absolute value of discretionary accruals (See Section III for further details).
AccelFiler	=	an indicator variable equal to one if the firm filed its first fiscal quarter-end financial statement as an accelerated filer, and zero otherwise
Acquival	=	the aggregate dollar value of acquisitions that result in at least 50 percent ownership of the acquired company in years t and t-1 scaled by the acquiring firm's year t market capitalization
AggLoss	=	an indicator variable equal to one if earnings before extraordinary items [data item #18] in years t and t-1 is negative, zero otherwise.
Altz	=	the Altman's Z-score. A proxy for risk of financial distress based on Altman [1968] as updated by Begley, Ming, and Watts [1996]
Big4	=	an indicator variable equal to one if the auditor is one of the four largest global firms, and zero otherwise
CATA	=	current assets divided by total assets.
CFO	=	operating cash flows divided by total assets.
ClientImport	=	audit fees for company *i* divided by sum of all audit fees reported in Audit Analytics for the same audit firm office in year t.
CURR	=	current assets divided by current liabilities.
DECYE	=	an indicator variable set equal to 1 if the company has a December year-end, and 0 otherwise

Appendix A (continued)

Variable		Definition
FirmAge	=	the natural log of the number of years of reported data stored in CRSP.
FirmSize	=	the natural log of the number of publicly traded clients audit by the company's audit firm during the year.
ForTrans	=	an indicator variable equal to one if the firm has a non-zero foreign currency translation [data item #150] in year t, and zero otherwise
GC	=	an indicator variable set equal to 1 if the company received a going concern opinion in the year, and 0 otherwise.
IA	=	an indicator variable equal to one if the firm has an internal audit function in year t, and zero otherwise
InstitOwn	=	percent of shares owned by institutional investors
LAFEES	=	the natural log of audit fees.
Lev	=	long-term debt/market cap
LIT	=	an indicator variable set equal to 1 if the company operates in a high-litigation risk industry, as defined by Francis, Philbrick, Schipper (1994) (i.e., in SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370), and 0 otherwise.
MKTBK	=	market value of equity divided by book value of equity
MKTSHR	=	the auditor's market share, in the metropolitan statistical areas, of all audit fees charged to companies in the two-digit SIC code industry.
QUICK	=	current assets less inventories, divided by current liabilities.
Restr	=	the aggregate restructuring charges [data item #376 x -1] in years t and t-1 scaled by the firm's year t market

Appendix A (continued)

Variable		Definition
ROA	=	net income divided by total assets.
ROI	=	earnings before interest and taxes divided by lagged total assets.
SalesGrowth	=	year-over-year sales growth [data item #12]
Seg	=	the log of the sum of the number of operating and geographic segments reported by the Compustat Segments database for the firm in year t
SDCFO	=	the standard deviation of (operating cash flows divided by total assets) from year t-4 through year t-1.
ShortTenure	=	an indicator variable set equal to 1 if the audit-client tenure to date is three year or less, and 0 otherwise.
TotalAssets	=	the log of total assets [data item #120]
TACCR_LAG	=	the absolute value of total accrual from continuing operations in year t-1 divided by total assets in year t-1.

Appendix B

Examples of SEC Comment Letters on the Proposed Rule

Subject: File No. SR-NASDAQ-2013-032
From: Charles Fairchild
Affiliation: Controller and CAO, Cray Inc.

March 29, 2013

The NASDAQ Stock Market
One Liberty Plaza
165 Broadway
New York, NY 10006

Re: Release No. 34-69030, File Number SR-NADAQ-2013-032

Dear Sirs and Madams,

We appreciate the opportunity to respond to NASDAQs proposed rule that would require listed companies to have an internal audit function. Although the proposed rule may strengthen internal controls, we believe any increase would not be significant and that the associated costs would far outweigh any benefits.

Listed companies like Cray already have regular audits and internal reviews of internal controls as part of Section 404 of the Sarbanes-Oxley Act. We have a low volume of transactions which allows us to maintain a relatively small accounting team and allows our external auditors to obtain a very high coverage of transactions during their work. For example, our external auditors performed detailed audit procedures on more than half of our 2012 revenue. Given this, we believe any reduction in time spent by our auditors as a result of an internal audit function would not be significant.

As we have a small accounting team, we are concerned that the need to respond to internal audit inquiries may cause us to add additional staff. This additional accounting staff would be incremental to any staff that would come onboard in our new internal audit function. The cost associated with additional accounting staff and the staff required for an internal audit function could be significant.

Existing regulation such as the Sarbanes-Oxley Act and the new standard on Conflict Minerals already places public companies listed in the United States at a competitive disadvantage compared to their peers outside the United States. Adding a requirement for an

internal audit function would only increase that disadvantage, in addition to serving as a deterrent for small companies to go public in the United States.

We believe the decision to create an internal audit function is best left to the Audit Committee. **We believe the skills and backgrounds of the members of the Audit Committee, in addition to their visibility into the organization, puts them in the best position to determine when the size and complexity of the company warrants an internal audit function.**

Before considering an internal audit function mandate, we believe there should be adequate study to determine whether this mandate will yield further improvement in internal controls. This mandate would represent a significant burden to companies listed on NASDAQ and should not be implemented unless there is concrete evidence showing that companies with an internal audit function have superior reporting integrity.

In summary, we applaud the effort to further strengthen internal controls, however, we do not believe a rule to mandate an internal audit function will significantly increase these controls and would be overly burdensome on smaller organizations.

Respectfully,

_By__/S/___Dan C. Regis_____
Daniel C. Regis
Chairman, Cray Inc. Audit Committee

Subject: File No. SR-NASDAQ-2013-032

From: Sharon Barbari

Affiliation: Cytokinetics, Inc.

March 29, 2013

To whom it may concern:
As a CFO of a small biotechnology with 74 employees and a market cap of $150M and no

material or consistent revenues this requirement is another example of the agency applying a one size fits all view. This requirement will be another financial burden added to the already mounting burden that is being placed on smaller companies today to remain compliant with regulatory requirements. In essence you are asking for critical capital to be used on compliance when the relative risk is small. In may experience over the past several years as the new compliance requirements have gone into place, the rules start very general and then continue to get more and more detailed what may have seemed reasonable to start becomes very expensive. If I take SOX for example, the cost of management testing and the implications on our integrated audit have risen, in the past year from what was $800K to what is projected with the new PCAOB guidance to audit firms of $1M, while our business has continue to shrink in size from a $60M burn to $39M burn. **There clearly needs to be a reality check as to what is the underlying objective or concern, and what would be the best and most efficient way for it to be addressed. If we are trying to address underlying issues with management and board governance there are much better ways to do that than adding yet another compliance function.**

As a CFO, I fully understand and embrace the area of risk assessment and I do make it a part of our annual plan with the Audit Committee where we look at relative areas of key risk for our business and ensure that we 1)one obtain the committees' input on their areas of concerns, 2) highlight for them the critical risk areas of the business in addition to the accounting areas, and 3) conduct operational audits as appropriate to inform of areas of correction, concern or improvement.

I sincerely feel that process of developing regulations is severely flawed. **More regulations will not necessarily lead to better outcomes. Participation upfront by a cross section of different sized companies would serve the agency well. In closing, I leave you with a quote from Ralph Waldo Emerson: " foolish consistency is the hobgoblin of little minds"**

Regards,

Sharon Barbari
Cytokinetics, Inc.
EVP Finance and CFO
280 East Grand Ave.
South San Francisco, CA 94080

Appendix C

Real world example of internal audit's simultaneous role of detecting control issues while preventing management opportunism (from author's professional experience).

Internal audit conducted an assessment of the accounting processes related to a particular set of transactions for a large manufacturing company. The internal audit team found that the journal entries for significant transactions were being generated using a desktop application, specifically Microsoft Excel. The application was not being treated as a standard IT application and thus did not have restrictions for user access or change management. As such, the integrity of the output was compromised. These findings were noted as control issues that needed to be resolved.

During the same project, the internal audit team assessed management's process to determine whether particular transactions should be capitalized. The decision to capitalize the transaction depended in part on whether the customer had a passing credit score. In certain instances, the credit department did not have sufficient information to provide a passing or failing credit score. Management applied its judgement and capitalized all such transactions; a decision that was favorable to the financial statement results. The internal audit team found this imprudent. After the issuance of the internal audit report, management no longer capitalized these transactions. Thus internal audit's finding resulted in management making more prudent decisions in the future.

TABLE 1
Sample Selection

Panel A: Internal Audit status of firms

Number of Firms trading on NASDAQ July 21, 2015	3058
Less: Observations not in WRDS	(353)
Less: Observations in financial industries (SIC 6000-6999)	(731)
Less: Observations in utility industries (SIC 4800-4999)	(92)
Less: Observations of non-U.S. headquarted firms	(299)
NASDAQ firms in scope	1583
Potential firm year observations (2013 and 2014)	3166
Less: Observations with missing IA information	(1515)
Firm years with IA information	1651

Panel B: Model Estimations

Equation [1]	
MW404/MW302 Analyses	
Firm years with IA information	1651
Firm years with insufficient data	(703)
Final Sample	948
Equation [2]	
Discretionary Accrual Analysis	
Firm years with IA information	1651
Firm years with insufficient data	(427)
Final Sample	1224
Equation [3]	
Fee Analysis	
Firm years with IA information	1651
Firm years with insufficient data	(425)
Final Sample	1226

Table 2

Panel A

Descriptive statistics on material weakness firms versus non-material weakness firms

Variable	Material weakness firms (SOX 404) (A maximum 48 firms)					Predicted difference	Firms with no reported material weaknesses (A maximum 900 firms)				
	Mean	Median	Std. Dev	25%	75%		Mean	Median	Std. Dev	25%	75%
IA	0.771	1	0.425	1	1	>	0.709	1	0.455	0	1
TotalAssets	226.558	203.771	5.249	89.389	476.277	<	503.710[a]	476.277[a]	5.512	165.836	1440.867
AccelFiler^	0.586	1	0.498	0	1	?	0.833[a]	1[a]	0.373	1	1
Altz	-0.007	1.263	11.064	-0.879	5.493	<	4.882[a]	4.486[a]	6.318	2.012	7.363
AggLoss	0.5214	1	0.505	0	1	>	0.358[b]	0[b]	0.48	0	1
ForTrans	0.354	0	0.483	0	1	>	0.4	0	0.49	0	1
Seg	3.466	3.001	1.954	2.000	5.995	>	4.187[c]*	3.999	2.377	2.000	8.000
Acquival	3.068	0	10.219	0	0.09	>	8.910[a]*	0	26.397	0	1.063
SalesGrowth	-0.125	0.053	1.600	-0.114	0.202	>	1.2884[a]*	0.199[a]*	4.282	-0.033	0.921
Restr	2.06	0	7.326	0	0.926	>	1.52	0	4.869	0	0.840
Age	10.859	12.491	2.604	4.998	27004	<	15.379[a]	17.993[b]	2.1	11.012	25.997

All variables are described in Appendix A. The t-test of means uses the pooled method when the underlying variances are equal and the Satterwaite method when they are unequal. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers. For ease of interpretation, each summary statistic for the three logged variables (Total Assets, Segments, and Age) is converted to an unlogged amount when presented above.

[a,b, or c] Significantly different from Material Weakness group at a one-tailed p-value <= 0.01, 0.05, or 0.10, respectively, under a t-test (shown on mean value above) or on Wilcoxon rank-sum test (shown on median value above).

*Statistically different from the other group using two tailed tests. Direction of difference is opposite of initial prediction.

^While internal control reporting is not required for non-accelerated filers, auditors are still required to gain an understanding of the internal control environment underlying the financial reporting process. Material weaknesses may be identified at this stage.

Table 2

Panel B

Descriptive statistics on material weakness firms versus non-material weakness firms

Variable	Material weakness firms (SOX 302) (A maximum72 firms)					Predicted difference	Firms with no reported material weaknesses (A maximum 876 firms)				
	Mean	Median	Std. Dev	25%	75%		Mean	Median	Std. Dev	25%	75%
IA	0.708	1	0.458	0	1	>	0.712	1	0.453	0	1
TotalAssets	229.752	206.645	4.826	83.763	538.614	<	513.885[a]	483.959[a]	5.529	153.392	1529.965
AccelFiler	0.653	1	0.057	0	1	?	0.834[a]	1[a]	0.013	1	1
Altz	0.770	1.76	9.818	0.641	5.266	<	4.952[a]	4.563[a]	0.213	2.058	7.416
AggLoss	0.597	1	0.494	0	1	>	0.347[a]	0[a]	0.476	0	1
ForTrans	0.403	0	0.058	0	1	>	0.397	0	0.490	0	1
Seg	3.615	3.999	1.992	2.000	6.001	>	4.195[c]*	3.999	2.385	2.000	7.996
Acquival	2.707	0	9.388	0	0	>	9.100[a]*	0[c]*	26.703	0	1.273
SalesGrowth	0.279	0.051	2.430	-0.155	0.309	>	1.294[a]*	0.204[a]*	4.304	-0.029	0.934
Restr	1.510	0	6.034	0	0.647	>	1.549	0	4.930	0	0.85
FirmAge	11.325	14.999	1.117	4.998	25.483	<	15.472[a]	17.993[b]	2.088	10.99	25.997

All variables are described in Appendix A. The t-test of means uses the pooled method when the underlying variances are equal and the Satterwaite method when they are unequal. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers. For ease of interpretation, each summary statistic for the three logged variables (Total Assets, Segments, and FirmAge) is converted to an unlogged amount when presented above.

[a,b, or c] Significantly different from Material Weakness group at a one-tailed p-value <= 0.01, 0.05, or 0.10, respectively, under a t-test (shown on mean value above) or on Wilcoxon rank-sum test (shown on median value above).

*Statistically different from the other group using two-tailed tests. Direction of difference is opposite of initial prediction.

Table 3

Pearson\Spearman correlation matrix

	MW302	MW404	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	MW302	MW404
IA (1)	-0.0023	0.0300		**0.5120**	**0.2371**	**-0.0710**	**-0.2373**	**0.0693**	**0.1676**	**0.1664**	**0.2246**	**0.2484**	**0.1122**	-0.0023	0.0300
TotalAssets (2)	**-0.1247**	**-0.1023**	**0.4847**		**0.5328**	0.0495	**-0.4168**	0.0606	**0.1985**	**0.2741**	**0.4679**	**0.3234**	**0.2679**	**-0.1339**	**-0.1171**
AccelFiler (3)	**-0.1255**	**-0.1429**	**0.2371**	**0.5264**		**0.1730**	**-0.1928**	0.0483	**0.1556**	**0.1543**	**0.2197**	**0.2118**	**0.1995**	**-0.1255**	**-0.1429**
Altz (4)	**-0.1651**	**-0.1597**	-0.0394	**0.1239**	**0.1774**		**-0.3749**	0.0156	**0.0978**	-0.0006	**0.0990**	**-0.1167**	**0.1322**	**-0.1424**	**-0.1325**
AggLoss (5)	**0.1376**	**0.0742**	**-0.2373**	**-0.4011**	**-0.1928**	**-0.3305**		-0.0089	**-0.1094**	**-0.1176**	**-0.3358**	**0.0916**	**-0.1795**	**0.1376**	**0.0742**
ForTrans (6)	0.0030	-0.0205	**0.0693**	**0.0709**	0.0483	-0.0172	-0.0089		**0.4158**	0.0556	0.0247	**0.1412**	**0.0945**	0.0030	-0.0205
Seg (7)	-0.0459	-0.0483	**0.1640**	**0.1975**	**0.1532**	0.0467	**-0.1107**	**0.4076**		**0.1432**	-0.0242	**0.3262**	**0.2332**	-0.0441	-0.0492
Acquival (8)	**-0.0655**	-0.0496	**0.1326**	**0.3763**	**0.1409**	-0.0038	**-0.1004**	0.0453	**0.0954**		**0.2487**	**0.2159**	0.0447	-0.0557	-0.0208
SalesGrowth (9)	**-0.0641**	**-0.0738**	**0.1609**	**0.4623**	**0.1262**	0.0504	**-0.1797**	**0.0684**	0.0610	**0.3223**		-0.0616	-0.0117	**-0.0911**	**-0.0882**
Restr (10)	0.0092	-0.0164	**0.1738**	**0.4393**	**0.1311**	-0.0345	-0.0550	0.0399	**0.1947**	**0.1512**	**0.1792**		**0.2019**	-0.0010	0.0051
Age (11)	**-0.1093**	**-0.1006**	**0.1192**	**0.2688**	**0.2500**	**0.0831**	**-0.1812**	**0.0660**	**0.2180**	**0.0854**	**0.0933**	**0.1266**		**-0.0771**	**-0.0723**

Pearson correlations are presented in the lower left while Spearman correlations are presented in the upper right.

All variables are described in Appendix A. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers.

There are 948 observations. Relationships that are significant at the (0.05) level are in bold.

Table 4
Multivariate results, Equation [1]; Logit regression of material weakness on internal audit

VARIABLES	Pred. Sign	MW404	M302
IA	+	1.231 **	0.778 **
		(0.528)	(0.377)
AccelFiler	?	-0.502	-0.218
		(0.565)	(0.436)
TotalAssets	-	-0.384 **	-0.290 **
		(0.185)	(0.154)
Altz	-	-0.084 ***	-0.052 **
		(0.032)	(0.025)
AggLoss	+	0.279	0.851 **
		(0.439)	(0.373)
ForTrans	+	0.602	0.446
		(0.576)	(0.418)
Seg	+	-0.360	-0.165
		(0.374)	(0.268)
Acquival	+	-0.001	-0.007
		(0.015)	(0.011)
SalesGrowth	+	-0.284 **	-0.098
		(0.119)	(0.074)
Restr	+	0.028	0.042
		(0.056)	(0.049)
Age	-	-0.140	-0.149
		(0.256)	(0.212)
Constant		-0.266	-1.086
		(1.608)	(1.261)
Observations		744	814
Industry Fixed Effects		Yes	Yes
Year Fixed Effects		Yes	Yes
F-test		0.000	0.000
Psuedo R^2		0.267	0.191
Area Under ROC Curve		0.863	0.807

***,**,*Represent significance at the 0.01, 0.05, and 0.10 levels, respectively based on one-tail (two-tailed) tests when a prediction is (is not) made. The dependent variables are dichotomous variables indicating whether the firm disclosed a material weakness under section 302 and 404 of the Sarbanes-Oxley Act. I estimate the model using logistic regressions with robust standard errors (in parentheses) clustered by firm. All continuous variables are winsorized at the 1 percent level. All variables are defined in Appendix A.

Table 5
Descriptive and univariate Statistics, Equation [2]; Logit regression of discretionary accruals on internal audit

	Firms with IA				Firm without IA		
Variable	Mean	Median	Std.Dev	Difference	Mean	Median	Std.Dev
AbsDiscAcc	0.154	0.063	0.312	<	0.328[a]	0.122	0.589
ROA	0.005	0.041	0.202	>	-0.167[a]	-0.012	0.421
CURR	2.715	2.147	2.286	<	4.197[a]	3.128	3.801
MVE	6.990	6.984	1.730	>	5.309[a]	5.266	1.618
MKTBK	3.476	2.475	5.517	>	4.444[b]	2.715	7.244
CFO	0.076	0.094	0.131	>	-0.074[a]	0.030	0.292
SDCFO	0.048	0.031	0.066	<	0.107[a]	0.060	0.130
AggLoss	0.263	0.000	0.440	<	0.547[a]	1.000	0.498
LIT	0.367	0.000	0.482	<	0.445[b]	0.000	0.498
Altz	4.239	4.278	5.501	>	2.913[b]	4.135	10.329
Lag_TACCR	-0.069	-0.056	0.090	>	-0.084[c]	-0.065	0.143
ShortTenure	0.145	0.000	0.353	<	0.201[b]	0.000	0.401
Big4	0.820	1.000	3.321	>	0.500[a]	0.500	7.814

All variables are described in Appendix A. The t-test of means uses the pooled method when the underlying variances are equal and the Satterwaite method when they are unequal. There are a maximum 880 IA firm observations and 364 non-IA firm observations. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers.

[a,b, or c] Significantly different from IA group at a two-tailed p-value <= 0.01, 0.05, or 0.10, respectively, under a t-test (shown on mean value above).

Table 6
Multivariate results, equation [2]; Regression of discretionary accruals on internal audit

VARIABLES	Pred Sign	Discretionary Accruals	Performance-Matched Discretionary Accruals
IA	-	-0.044 *	-0.096 *
		(0.034)	(0.059)
ROA	-	-0.184 *	-0.620 ***
		(0.133)	(0.259)
Lev	?	0.000	0.000
		(0.000)	(0.000)
CURR	+	0.006	0.055 ***
		(0.008)	(0.021)
MVE	-	-0.010	-0.012
		0.009	(0.020)
MKTBK	+	0.003	0.011 **
		(0.002)	(0.006)
CFO	-	0.121	0.549
		(0.212)	(0.423)
SDCFO	+	1.047 ***	1.385 **
		(0.338)	(0.697)
AggLoss	+	-0.028	-0.159
		(0.029)	(0.062)
LIT	-	0.043 *	0.065
		(0.025)	(0.049)
Altz	-	-0.003	-0.026 ***
		(0.004)	(0.009)
TACCR_LAG	+	-0.533 **	-0.826 **
		(0.211)	(0.368)
ShortTenure	+	0.062 *	0.071 *
		0.039	(0.074)
Big4	-	-0.049 *	-0.098 **
		(0.032)	(0.062)
Constant		0.180 ***	0.297 **
		(0.056)	(0.124)
Observations		1,243	1225
Year Fixed Effects		Yes	Yes
F-test		0.000	0.000
R^2		0.183	0.202

***,**,*Represent significance at the 0.01, 0.05, and 0.10 levels, respectively based on one-tail (two-tailed) tests when a prediction is (is not) made. The dependent variable is the absolute value of discretionary accruals (ABSDA) and absolute value performance-matched discretionary accruals (ABSPMDA). I estimate the model using robust standard errors (in parentheses) clustered by firm. All continuous variables are winsorized at the 1 percent level. All variables are defined in Appendix A.

Table 7

Descriptive and univariate statistics, equation [3]; Regression of audit fees on internal audit

Variable	Mean	Median	Std. Dev. n=1226	IA Firm n=884	non-IA Firm n=342	Test of Diff
LAFEES	970,047	968,981	3	1,319,812	437,644	[a]
IA	0.721	1.000	0.449			
TotalAssets	508.263	500.196	5.755	879.189	123.470	[a]
Seg	4.208	3.999	2.344	4.623	3.294	[a]
CATA	0.554	0.560	0.229	0.513	0.661	[a]
QUICK	0.444	0.404	0.233	0.393	0.574	[a]
Lev	56.263	3.287	152.338	75.679	6.076	[a]
ROI	-0.049	0.035	0.390	0.018	-0.223	[a]
AggLoss	0.354	0.000	0.478	0.276	0.555	[a]
GC	0.021	0.000	0.144	0.014	0.041	[b]
ForTrans	0.420	0.000	0.494	0.441	0.365	[b]
DECYE	0.647	1.000	0.478	0.628	0.696	[b]
Accelfiler	0.791	1.000	0.407	0.866	0.596	[a]
ShortTenure	0.209	0.000	0.407	0.182	0.281	[a]
FimSize	937	1959	4.707	1,217	478	[a]
MktShare	0.285	0.097	0.358	0.321	0.193	[a]
ClientImport	0.016	0.000	0.065	0.011	0.030	[a]

All variables are described in Appendix A. A t-test of mean differences has been peformed for variables that were not separted into IA and non-IA firm groups in Table 5. The t-test of means uses the pooled method when the underlying variances are equal and the Satterwaite method when they are unequal. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers. For ease of interpretation, each of the summary statistic for the four logged variables (LAFEES, TotalAssets, Seg, and FirmSize) is converted to an unlogged amount when presented above.

[a,b, or c] Significantly different from IA group at a two-tailed p-value <= 0.01, 0.05, or 0.10, respectively, under a t-test (shown on mean value above).

Table 8
Multivariate results, equation [3]; Regression of audit fees on internal audit

VARIABLES	Pred. Sign	Audit Fees (1)		Audit Fees (2)	
IA	+	0.205	***	0.247	***
		(0.048)		(0.046)	
TotalAssets	+	0.410	***	0.423	***
		(0.012)		(0.019)	
Seg	+	0.145	***	0.150	***
		(0.026)		(0.026)	
CATA	+	0.158		0.265	*
		(0.201)		(0.197)	
QUICK	+	0.082		-0.036	
		(0.185)		(0.183)	
Lev	+	0.000	*	0.000	*
		0.000		(0.000)	
ROI	-	-0.101	***	-0.038	
		(0.039)		(0.050)	
AggLoss	+	0.194	***	0.241	***
		(0.041)		(0.040)	
GC	+	0.284	***	0.229	***
		(0.084)		(0.081)	
ForTrans	+	0.147	***	0.124	***
		(0.037)		(0.038)	
DECYE	+	0.107	***	0.116	***
		(0.039)		(0.039)	
AccelFiler	+	0.057		0.043	
		(0.059)		(0.058)	
ShortTenure	-	-0.023		-0.121	***
		(0.044)		(0.046)	
FirmSize	+	0.190	***	0.000	***
		(0.017)		(0.000)	
MktShare	+	0.111	*	0.091	*
		(0.060)		(0.053)	
ClientImport	-	1.008	***	-2.069	***
		(0.375)		(0.527)	
MW302				0.158	**
				(0.068)	
MW404				0.013	
				(0.087)	
Constant		9.072	***	9.983	***
		(0.150)		(0.141)	
Observations		1,226		1,163	
Industry Fixed Effects		Yes		Yes	
Year Fixed Effects		Yes		Yes	
R-squared		0.838		0.847	

***,**,*Represent significance at the 0.01, 0.05, and 0.10 levels, respectively based on one-tail (two-tailed) tests when a prediction is (is not) made. The dependent variable is the natural log of audit fees (LAFEES). I estimate the model using robust standard errors (in parentheses) clustered by firm. All continuous variables are winsorized at the 1 percent level. All variables are defined in Appendix A.

Table 9
Descriptive and univariate statistics on IA firms versus non IA firms

Variable	Firms with an IA function						Firms without an IA function				
	Mean	Median	Std. Dev	25%	75%	Actual Difference	Mean	Median	Std. Dev	25%	75%
TotalAssets	819.750	726.327	4.194	311.376	2034.489	>	131.105[a]	134.82[a]	3.456	55.092	292.364
AccelFiler	0.879	1.000	0.327	1.000	1.000	>	0.678[a]	1.000[a]	0.468	0.000	1.000
Altz	4.466	4.252	4.639	2.001	6.808	>	5.050	5.247[b]	10.168	1.372	9.952
AggLoss	0.293	0.000	0.456	0.000	1.000	<	0.546[a]	1.000[a]	0.499	0.000	1.000
Fortrans	0.419	0.000	0.494	0.000	1.000	>	0.344[b]	0.000[b]	0.476	0.000	1.000
Seg	4.536	3.999	2.275	2.000	7.996	>	3.323[a]	2.998[a]	2.472	2.000	6.001
Acquival	10.793	0.000	28.355	0.000	3.675	>	3.226[a]	0.000[a]	17.138	0.000	0.000
SalesGrowth	1.646	0.345	4.887	-0.045	1.417	>	0.155[a]	0.039[a]	0.775	-0.023	0.208
Restr	2.100	0.000	5.844	0.000	1.410	>	0.176[a]	0.000[a]	0.638	0.000	0.035
Age	15.991	17.993	2.077	11.001	27.004	>	11.929[a]	14.999[a]	2.509	15.014	22.988
Lev	83.879	13.692	193.533	13.692	68.539	>	6.085[a]	0.000[a]	19.153	0.000	2.598
InstitOwn	0.6313	0.692	0.225	0.528	0.794	>	0.455[a]	0.430[a]	0.279	0.219	0.718

All variables are described in Appendix A. The t-test of means uses the pooled method when the underlying variances are equal and the Satterwaite method when they are unequal. There are a maximum 675 IA firm observations and 273 non-IA firm observations. Each of the continuous variables is winsorized at 1% and 99% to mitigate outliers. For ease of interpretation, each summary statistic for the three logged variables (Total Assets, Segments, Age) is converted to an unlogged amount when presented above.

[a,b, or c] Significantly different from IA group at a two-tailed p-value <= 0.01, 0.05, or 0.10, respectively, under a t-test (shown on mean value above) or on Wilcoxon rank-sum test (shown on median value above).

Table 10
Multivariate results, equation [4]; Logit regression of internal audit on firm characteristics

VARIABLES	IA	
Lev	0.020	**
	(0.009)	
InstitOwn	-0.147	
	(0.921)	
TotalAssets	0.991	***
	(0.232)	
Accelfiler	-0.649	
	(0.532)	
Altz	-0.078	**
	(0.033)	
AggLoss	-0.393	
	(0.330)	
ForTrans	0.164	
	(0.382)	
Seg	0.195	
	(0.261)	
ACQUIVAL	-0.025	***
	(0.008)	
SalesGrowth	0.242	
	(0.217)	
Restr	0.378	
	(0.269)	
FirmAge	-0.132	
	(0.260)	
Constant	-3.933	***
	(1.252)	
Observations	675	
Industry Fixed Effect	Yes	
Year Fixed Effects	Yes	
F-test	0.000	
Psuedo R^2	0.381	
Area under ROC curve	0.885	

***,**,*Represent significance at the 0.01, 0.05, and 0.10 levels, respectively based on one-tail (two-tailed) tests when a prediction is (is not) made. The dependent variable is the dichotomous variable IA. I estimate the model using logistic regression with robust standard errors (in parentheses) clustered by firm. All continuous variables are winsorized at the 1 percent level. All variables are defined in Appendix A.

Table 11
Multivariate results, equation [1], using Two-Stage IV Regression

VARIABLES	Pred. Sign	M302		MW404	
IA	+	0.978	**	1.613	***
		(0.519)		(0.648)	
AccelFiler	?	-0.124		-0.213	
		(0.451)		(0.579)	
TotalAssets	-	-0.301	*	-0.490	**
		(0.192)		(0.220)	
Altz	-	-0.049	**	-0.077	***
		(0.026)		(0.031)	
AggLoss	+	0.987	***	0.409	
		(0.394)		(0.462)	
ForTrans	+	0.312		0.517	
		(0.427)		(0.590)	
Seg	+	-0.120		-0.345	
		(0.270)		(0.382)	
Acquival	+	-0.006		0.000	
		(0.012)		(0.020)	
SalesGrowth	+	-0.061		-0.274	*
		(0.071)		(0.133)	
Restr	+	0.105	**	0.097	*
		(0.062)		(0.068)	
Age	-	-0.060		-0.110	
		(0.233)		(0.278)	
Resid		-0.055		-0.109	
		(0.154)		(0.172)	
Constant		-1.436		-0.216	
		(1.352)		(1.689)	
Observations		775		705	
Industry Fixed Effects		Yes		Yes	
Year Fixed Effects		Yes		Yes	
F-test		0.000		0.000	
Psuedo R^2		0.178		0.260	
Area Under ROC Curve		0.805		0.857	

***,**,*Represent significance at the 0.01, 0.05, and 0.10 levels, respectively based on one-tail (two-tailed) tests when a prediction is (is not) made. The dependent variables are dichotomous variables indicating whether the firm disclosed a material weakness under section 302 and 404 of the Sarbanes-Oxley Act. I estimate the model using logistic regressions with robust standard errors (in parentheses) clustered by firm. All continuous variables are winsorized at the 1 percent level. All variables are defined in Appendix A.

Table 12

Propensity Score Matching, equation[2]
Treatment model:Probit

	Variables	Performance-Matched Disretionary Accruals	Std Error
ATE			
(1 vs 0)	IA	-0.177 ***	0.064

***,**,* Represent significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 13
Enodgenous treatment-regression model, equation [2]
Regression of absolute value discretionary accruals on internal audit

VARIABLES	Pred Sign	Performance-Matched Discretionary Accruals	
IA	-	-0.174	**
		(0.100)	
ROA	-	0.003	
		(0.320)	
Lev	?	0.000	
		(0.000)	
CURR	+	0.061	**
		(0.029)	
MVE	-	-0.017	
		(0.018)	
MKTBK	+	0.013	***
		(0.006)	
CFO	-	0.022	
		(0.317)	
SDCFO	+	0.578	
		(0.569)	
AggLoss	+	-0.106	
		(0.079)	
LIT	-	0.066	
		(0.052)	
Altz	-	-0.030	***
		(0.013)	
TACCR_LAG	+	0.207	
		(0.411)	
ShortTenure	+	0.047	
		(0.077)	
Big4	-	-0.040	
		0.059	
Constant		0.475	***
		(0.141)	
Observations		902	
Year Fixed Effects		Yes	
Log pseudolikelihood		-1283	
Wald test of indep. eqns. (rho = 0): chi2(1) =		1.33	Prob > chi2 = 0.2488

***,**,*Represent significance at the 0.01, 0.05, and 0.10 levels, respectively based on one-tail (two-tailed) tests when a prediction is (is not) made. The dependent variable

is absolute value performance-matched discretionary accruals (ABSPMDA). I estimate the model using robust standard errors (in parentheses) clustered by firm. All continuous variables are winsorized at the 1 percent level. All variables are defined in Appendix A.

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